Measuring Return on Investment in Navy Compensation Initiatives

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Outline of the Briefing

- Overview
- Methodology
- Current Applications
- Challenges
- Future Directions

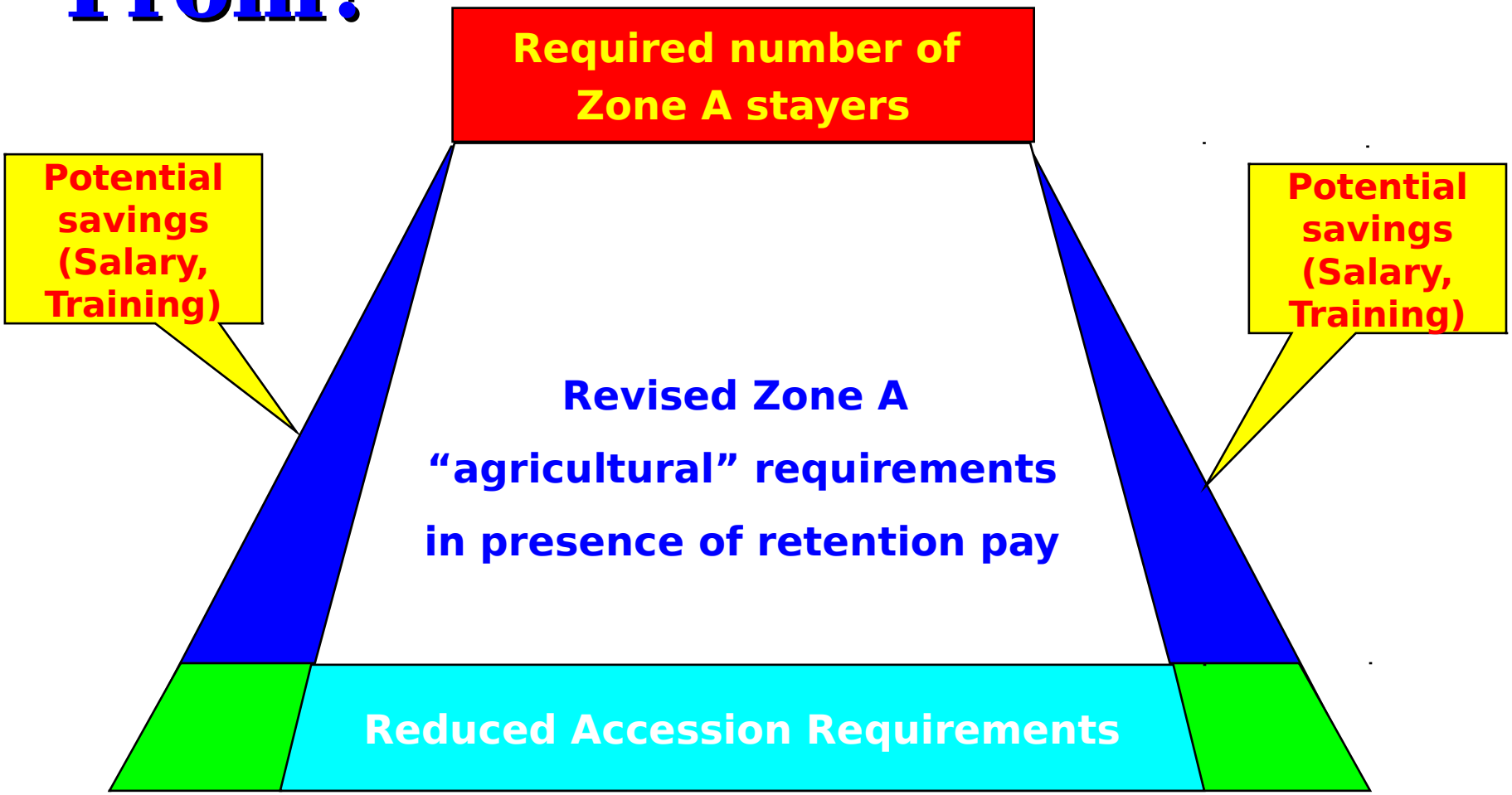
Overview

- **Navy's objective is to invest *cost-effectively* in People to provide the Right (Trained) Sailor, at the Right Time, in the Right Place**
  - **Identify and implement policies and programs that accomplish this objective**
- **Resources are scarce**
  - **Compensation programs compete for dollars**
  - **Choose those that offer best Return on Investment (ROI)**

Methodology

- **ROI = Net Present Value (NPV) of Benefits - Costs**
  - **Benefits = Dollar value of improved readiness, retention, recruiting, distribution, etc. resulting from the policy or program in question over a stated horizon**
  - **Costs = Monetary (and dollar value of non-monetary) costs of implementing the policy or program over the same horizon**

Methodology
Where do Benefits Come From?



Methodology
Estimating Behavioral Effects

- Changes in retention and enlistment supply behavior induced by changes in compensation policy
- Projections based on empirical results in the economics literature
  - Retention: ACOL models
  - Enlistment supply models

Methodology
Estimating Costs

- **Program costs usually straightforward**
  - **New pay/pay level * number of takers**
- **Benefits based on reduction in recruiting, training and salary costs**
  - **Assume a constant level of readiness**

Current Applications

- Selective Reenlistment Bonus
- Regular Reenlistment Bonus
- Enlistment Bonus
- Lateral Conversion Bonus
- Enhanced Career Sea Pay
- Location SRB
- Distribution Incentive Pay

Current Applications
Selective Reenlistment Bonus (SRB)

Purpose	• Target retention incentives to key skills and reenlistment zones
Costs	• Increased MPN expenditures for bonuses

Budget - New Payments (Unfunded)

FY 02	FY 03	FY 04	FY 05
$186M	$186M	$160M	$163
	($21M)	($48M)	($57M)

Comments	Beginning in FY 03 POR results in a drop in SRB reenlistments because an increased portion of POR must pay for anniversary payments and pay raises
Benefits	• Improved retention of experienced sailors in critical skills • Reduced training costs • Reduced recruiting costs • Improved readiness

✓ **Right Number**	✓ **Right Experience Mix**	✓ **Right Skill Mix**	**Right Time**	**Right Place**

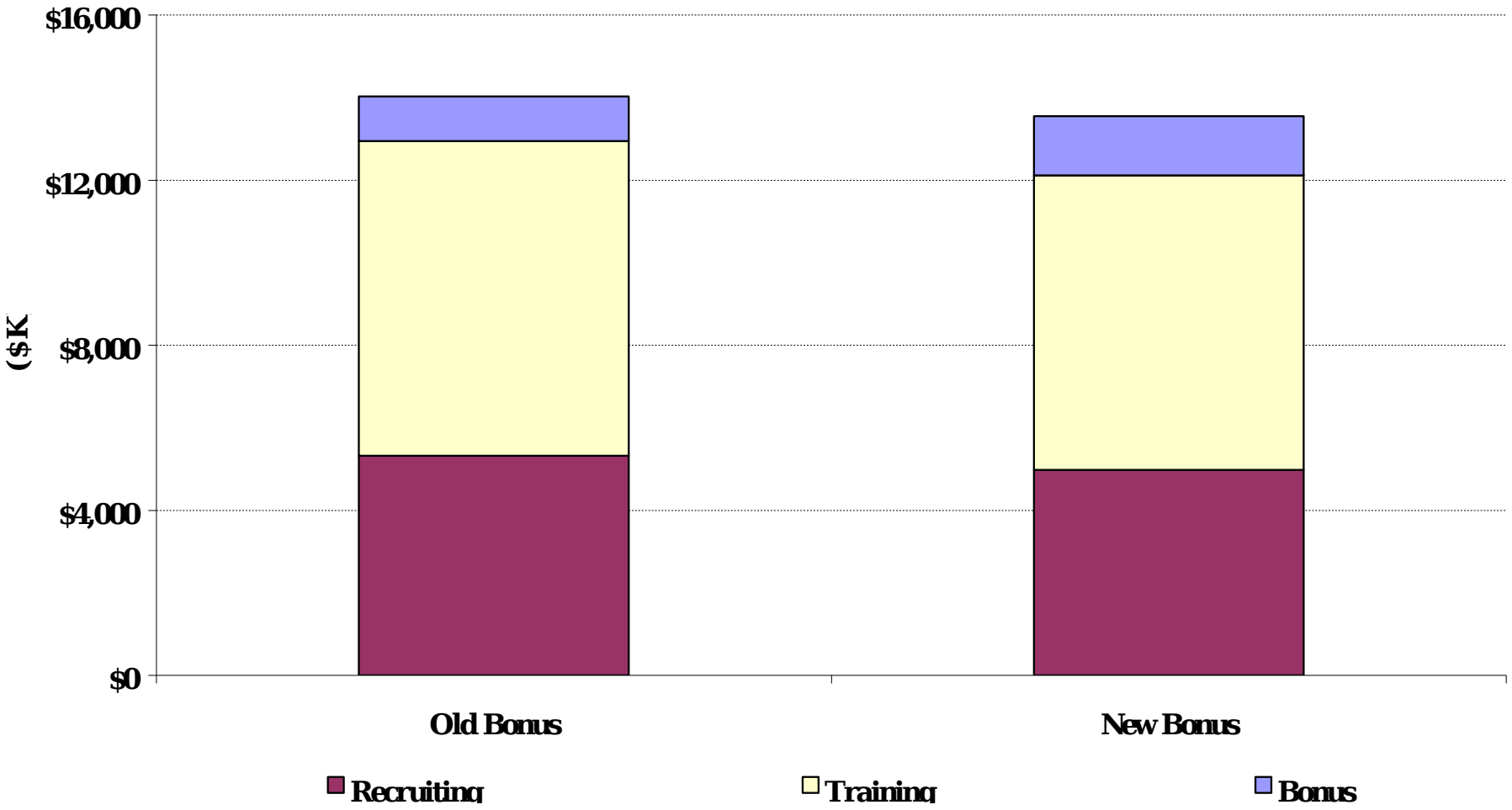
Current Applications
ROI for SRB: Example

- **Compare Present Value of recruiting, training cost avoidance (benefits) and SRB (costs) for alternative paths to achieve the same number of reenlistments**
  - **Path 1: lower SRB, lower first-term retention rate, but greater numbers of recruits and trainees**
  - **Path 2: higher SRB, higher first term retention rate, but lower numbers of recruits and trainees**

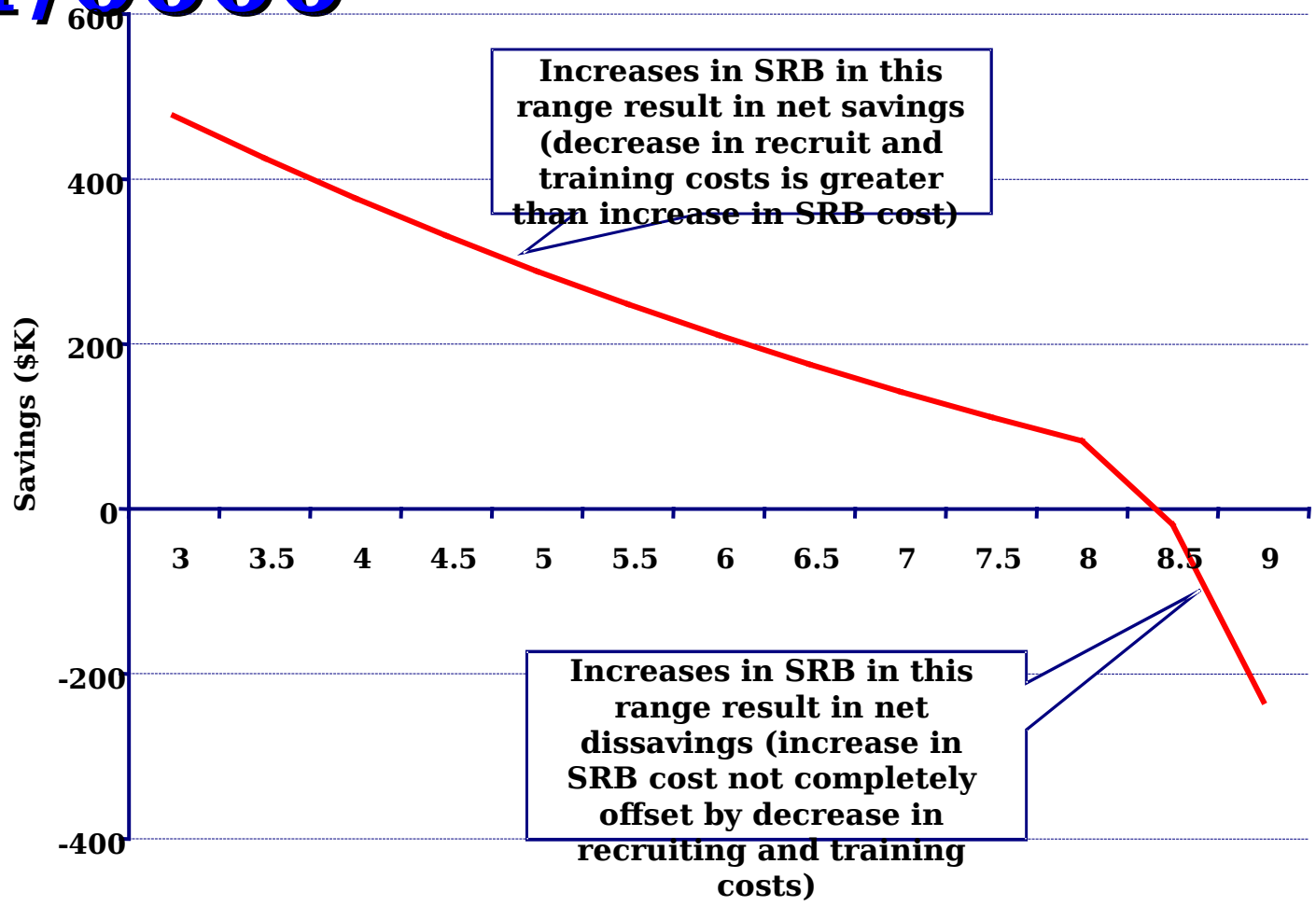
Current Applications
Example—IT/0000

	Old Bonus	New Bonus	Delta
SRB Multiplier	3.0	4.0	1.0
Bonus Award	15,793	21,058	$5,264
Retention Rate	0.4611	0.4929	0.0318
Inventory			
YOS 0	355	332	23
YOS 1	274	256	18
YOS 2	247	231	16
YOS 3	230	215	15
YOS 4	217	203	14
Reenlisted	100	100	0
Costs ($K)			
Bonus	$1,079	$1,438	-$360
Recruiting	$5,321	$4,977	$344
Training	$7,629	$7,136	$493
Total	**$14,029**	**$13,552**	**$477**

Current Applications
Cost—IT/0000



Current Applications
ROI across SRB Levels—IT/0000



Current Applications
SRB Return on Investment

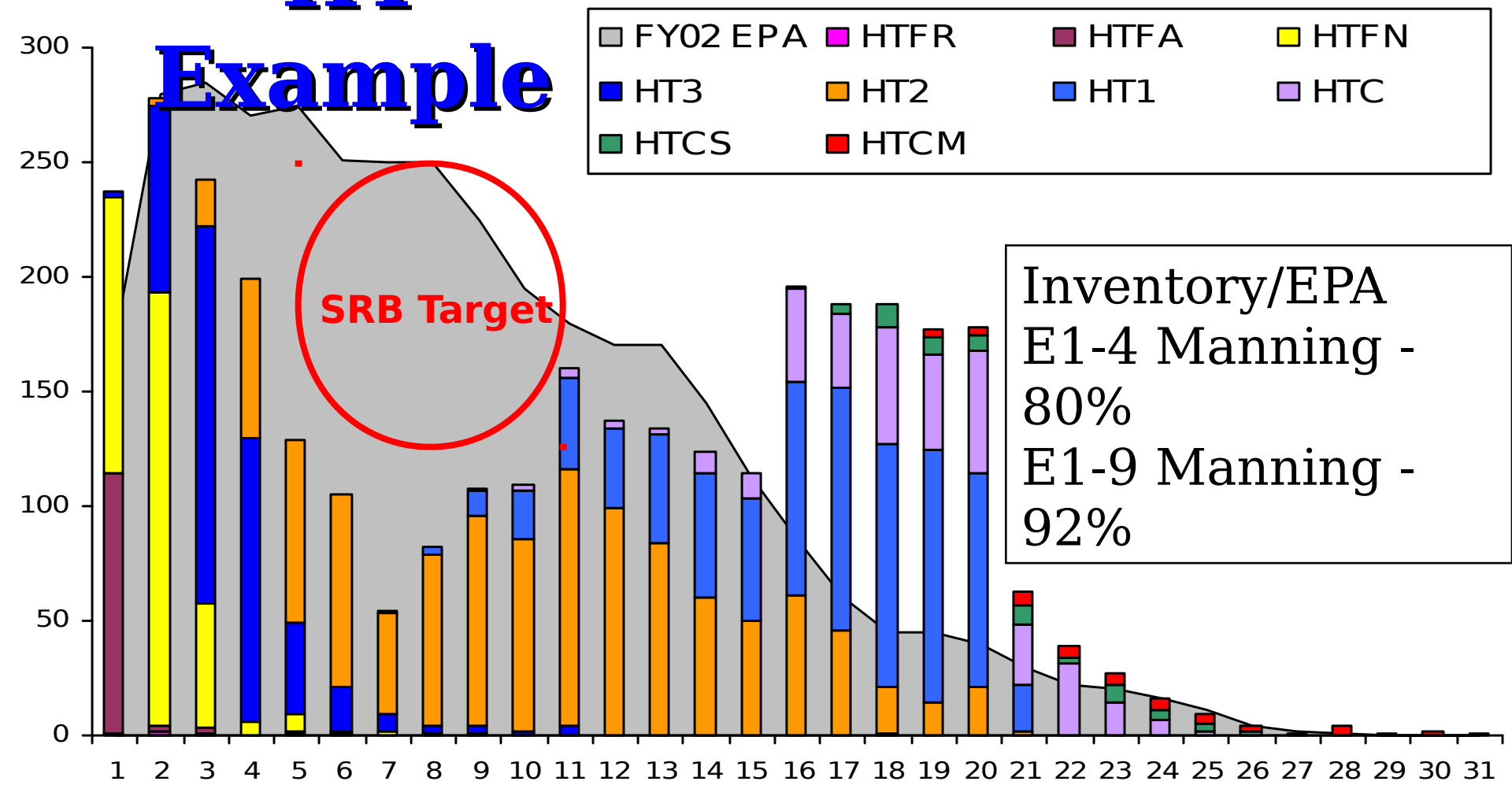
Rating	Old Multiplier	New Multiplier	Cost Avoid./ Reenlistee ($)
BU	1.0	2.0	7,537
UT	1.0	2.0	7,311
AME	3.5	4.5	7,078
CM	1.0	2.0	5,921
CTA	0.5	1.5	5,856
IT	3.0	4.0	4,768
SW	1.5	2.5	4,738
MN	3.5	4.5	2,436
ABF	2.5	3.5	1,085
OS	2.0	3.0	381
MT	4.5	5.5	148
AE	2.0	3.0	82
MM	2.0	3.0	78

Rating	Old Multiplier	New Multiplier	Cost per Reenlistee ($)
SM	2.0	3.0	-42
GSE	1.5	2.5	-730
PR	2.0	3.0	-980
IC	1.0	2.0	-987
ABE	2.5	3.5	-1,152
GSM	1.5	2.5	-1,369
EO	1.0	2.0	-1,499
MA	1.5	2.5	-1,551
EN	1.0	2.0	-1,787
QM	2.0	3.0	-1,837
AG	0.5	1.5	-1,888
HT	1.0	2.0	-1,895
AS	0.0	1.0	-2,048
DK	0.5	1.5	-2,592
SH	1.0	2.0	-2,712

Current Applications

ROI Alone Cannot Determine SRB HTI

Example



Current Applications
Regular Reenlistment Bonus (RRB)

Purpose	• Apply retention incentives to non-SRB skills			
Costs	• Increased MPN expenditures for bonuses			
	Budget - New Payments (Unfunded)			
	FY 02	FY 03	FY 04 ($42M)	FY 05 ($84M)
Comments	RRB is currently an FY 04 ULB initiative submitted by Marine Corps			
Benefits	• Improved retention of experienced sailors in non-critical skills • Recruiting/training cost avoidance • Improved readiness			

✓ **Right Number**	✓ **Right Experience Mix**	✓ **Right Skill Mix**	**Right Time**	**Right Place**

Current Applications
RRB Return on Investment

- **Estimated annual cost for RRB ~$80M**
  - **About $1000/yr for 4-year average reenlistment**
  - **50% lump-sum; paid to non-SRB reenlistees only**
- **Best case scenario is ROI for Zone A reenlistees**
  - **Most responsive to pay changes**
- **ROI analysis uses aggregate of eight skills that would be eligible for RRB at Zone A**
  - **ABH, AK, AS, AZ, BM, PN, SK, YN**
  - **Most RRB skills have high baseline retention rates and/or low recruiting and training costs**

Current Applications
Example—RRB Composite Results

	Old Bonus	New Bonus	Delta
Bonus Award	0	$4,000	$4,000
Retention Rate	0.3417	0.3463	0.0047
Inventory			
YOS 0	495	489	-7
YOS 1	382	377	-5
YOS 2	345	340	-5
YOS 3	321	317	-4
YOS 4	303	299	-4
Reenlisted	100	100	0
Costs ($K)			
Bonus	0	270	-270
Recruiting	7,432	7,328	104
Training	8,739	8,617	122
Total	16,171	16,215	-44

- **Bottom line: Economic rent high because RRB would be paid to skills with high retention rates and/or lower recruiting/training cost avoidance**

Current Applications
Enlistment Bonus (EB)/Phased EB

Purpose	• To expand overall recruiting market, to channel recruits to right skills, and to time entry for efficient training • Increase value/effectiveness through earlier payment of portion of bonus			
Costs	• Increased MPN expenditures for bonuses			
	Budget (Unfunded)			
	FY 02	FY 03	FY 04	FY 05
	$98.4M	$100.6M	$92.2M	$91.9M
		($14.5M)	($27.3M)	($35.1M)
Benefits	• Increased number of high quality recruits • Better skill channeling • More level-loaded training • Cost reduction of other recruiting resources • Improved readiness			

✓ **Right Number**	✓ **Right Experience Mix**	✓ **Right Skill Mix**	**Right Time**	**Right Place**

Current Applications
Enlistment Bonus: ROI

- **Enlistment bonuses substitute for other resources in obtaining high quality recruits in right skills.**
  - **Focus on recruiters as alternative**
- **Each $1 million in enlistment bonus dollars saves about 18-20 additional recruiters**
  - **Net cost avoidance (after cost of bonus) of additional $1M in enlistment bonuses is approximately $220K-$320K**
  - **Rate of return is approximately 22%-32%**
- **Does not include additional benefits of improved channeling of recruits into skills or increased level-loading of training**

Current Applications
Lateral Conversion Bonus (LCB)

Purpose	• LCB would encourage sailors to convert to shortage skills • Pay $1-4K bonus for up to 2,500 conversion in initial year
Costs	• Increased MPN expenditures for bonuses
	Budget (Unfunded) FY 02 — FY 03 — FY 04 — FY 05 0 — 0 ($10.0M) — ($12.0M)
Benefits	• Improved skill manning — reduced shortages, reduced overages • Retention of valued experience • Training/recruiting cost avoidance • Improved readiness

Right Number	✓ **Right Experience Mix**	✓ **Right Skill Mix**	**Right Time**	**Right Place**

Current Applications
LCB Example—HT Rating

- LCB can be more cost-effective, even with retraining costs, than either increasing accessions or paying a larger SRB
- HT A School costs about $11,000 per trainee
- Relatively small bonus to attract experienced sailors from overmanned ratings
- Can fill shortages more quickly with LCB than with higher accessions
- Nearly zero economic rent

Current Applications
LCB Example—HT Rating

	Old Bonus	New Bonus	LCB Bonus
SRB Multiplier	1.0	2.0	LCB + SRB 1.0
Bonus Award	5,264	10,529	4,000/5,264
Retention Rate	0.4635	0.4698	0.4635
Inventory			
YOS 0	3,528	3,481	3,481
YOS 1	2,721	2,685	2,685
YOS 2	2,459	2,426	2,426
YOS 3	2,288	2,258	2,258
YOS 4	2,157	2,129	2,129
Reenlisted	1,000	1,000	987
Lateral Conv.	0	0	13
Costs ($K)			
Bonus	$3,596	$7,191	$3,596
LCB	$0	$0	$52
Recruiting	$52,927	$52,222	$52,222
Training	$74,663	$73,668	$73,668
Lat Training	$0	$0	$151
Total	**$131,186**	**$133,081**	**$129,690**

Current Applications
Enhanced Career Sea Pay (CSP)

Purpose	• Improve sea manning through incentives to go to sea (and remain in the Navy) and to voluntarily extend sea tours • #1 Fleet priority			
Costs	• Increased MPN expenditures for sea pay			
	Budget (Unfunded)			
	FY 02	FY 03	FY 04	FY 05
	$365M	$363.4M	$363.4M	$363.4M
Benefits	• Improved sea billet manning • Reduced crew turnover • Higher productivity at sea • Improved retention • Training/recruiting cost avoidance • Improved readiness			

✓ Right Number	✓ Right Experience Mix	✓ Right Skill Mix	✓ Right Time	✓ Right Place

Current Applications
Enhanced Career Sea Pay ROI

- **PCS Savings**
  - **Gain 9,100 manyears of sea duty per year, according to CNA (about 3,030 fewer PCS moves per year)**
    - **PCS cost avoidance of about $17 million annually**
- **First-Term Retention Effects**
  - **CNA estimates 0.77 percentage point increase in first-term retention**
  - **Recruiting and training cost avoidance of about $82 million**
- **Other Cost Avoidance: ITEMPO Pay**
  - **Agreement to defer ITEMPO pay if CSP funded**
  - **ITEMPO cost: $33M in FY02, $118M in steady-state**

Current Applications
Location SRB (Pilot)

Note	Data from Pilot will be used to develop an ROI for LSRB
Purpose	• Provide incentive to improve manning of hard-to-fill locations by paying an SRB premium to those who reenlist and volunteer for certain locations
Costs	• Increased MPN expenditures for bonuses
	Budget (Unfunded) FY 02 $3M | FY 03 $5M | FY 04 $6M | FY 05 $8M
Benefits	• Improved manning at hard-to-fill locations • Improved retention • Training/recruiting cost avoidance • Improved readiness

✓ **Right Number**	✓ **Right Experience Mix**	✓ **Right Skill Mix**	✓ **Right Time**	✓ **Right Place**

Current Applications
Distribution Incentive Pay

Purpose	• Provide incentive of up to $750 volunteer for assignments at hard-to-fill locations			
Costs	• Increased MPN expenditures for pay			
	Budget (Unfunded)			
	FY 02	FY 03	FY 04	FY 05
	$2.125M	$1.0M	$13.5M	$31.5M
Benefits	• Improved staffing at hard-to-fill locations • Improved retention • Training/recruiting cost avoidance • Improved readiness			

✓ **Right Number**	✓ **Right Experience Mix**	✓ **Right Skill Mix**	✓ **Right Time**	✓ **Right Place**

Challenges

- **Why is ROI so hard to calculate?**
- **Measuring ROI for assignment-focused incentives**
- **Retention effects after Zone A**
- **Forward planning vs. short-term analysis**
- **Defining and modeling requirements**

Challenges
Why Is ROI so Hard to Calculate?

- **Requires quantifiable calculation of cost and benefits — preferably in dollar terms for a true ROI**
- **While costs of programs/policies are normally straightforward, benefits can be more difficult to quantify**
  - **Hard to isolate effect of program/policy on output measure (readiness, retention, etc.)**
  - ***Dollar value* of readiness not easily quantified**
  - **Programs/policies frequently have multiple benefits or effects**
    - **ex.: CSP affects both retention and willingness to go to or remain at sea)**

Challenges
Measuring ROI for Assignment-focused Incentives

- Retention and recruiting are relatively easy to quantify
  - Large body of empirical research to allow prediction
- Growing number of pays and incentives to direct individuals to particular assignments
  - Career Sea Pay, DIP, SDAP, ACCP
  - No reliable way to measure ability of these pays to induce voluntary behavior
  - Only indirect behavior (ultimate retention decision)
- Need for carefully constructed pilot programs to allow measurement of effects

Challenges
Retention Effects After Zone A

- Zone A analysis is fairly simple, but the approach must be extended to subsequent decision points
  - What is the ROI on a Zone C SRB?
- Same methodology can be adapted to consider multiple decision points
  - Find cost-effective SRB plan across zones to most closely match personnel flows to requirements
    - minimize training, recruiting and “agricultural” personnel costs

Challenges
Forward Planning vs. Short-Term Analysis

- Examples shown here are largely based on forward planning
  - Show most efficient approach for long run
- In the short term, there may be critical shortages or surpluses requiring deviation from the long-run approach
  - More difficult to show ROI in these cases
  - Benefit of pay may be avoiding a readiness shortfall

Challenges
Defining and Modeling Requirements

- Zone A examples implicitly assume that some personnel are recruited, trained and retained merely to meet requirements at initial decision point
  - Increased incentive pays reduce need for these personnel
- Getting requirements right is extremely important
  - Avoid overstating program benefits
- Problem is exacerbated when later career decision points are considered

Future Directions

- Expand ROI analysis to other compensation areas
  - Officer compensation
- Community-level analysis of SRB program
  - ROI analysis as integral part of modeling process
- Short-term ROI tradeoff analyses

Backup Slides

Methodology
Why Discounted Present Value?

- **Discounting converts future-year costs and benefits to a current-year equivalent**
- ***Time preference* implies that money today is worth more than money tomorrow**
  - **Current dollars are more valuable because they can be invested or spent to yield more income/satisfaction**
  - **Discounting represents Opportunity Cost of Money**
- **Discounting reduces value of future costs/benefits depending upon how long in the future**
- **Rate used in this ROI analysis is 10%**
  - **i.e., $100 today is worth $110 in one year**